

Rec'd PCT/PTO 07 APR 2005

(12) INTERNATIONAL PUBLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



18/530553



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/033417 A3

(51) International Patent Classification⁷: C07C 281/18,
A61K 31/15, A61P 31/22, C12N 15/11

(21) International Application Number:
PCT/IB2003/004636

(22) International Filing Date: 9 October 2003 (09.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02292494.8 9 October 2002 (09.10.2002) EP

(71) Applicant (for all designated States except US): IN-
STITUT NATIONAL DE LA SANTE ET DE LA
RECHERCHE MEDICALE (INSERM) [FR/FR]; 101,
rue de Tolbiac, F-75013 Paris (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DIAZ,
Jean-Jacques [FR/FR]; 20, rue Francis de Pressensé,
F-69190 Saint-Fons (FR). GRECO, Anna [FR/FR]; 26,
rue Roussy, F-69004 Lyon (FR).

(74) Agents: TETAZ, Franck et al.; Cabinet Regimbeau, Tour
Crédit Lyonnais, 129, rue Servient, F-69326 Lyon Cedex
03 (FR).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

(88) Date of publication of the international search report:
22 July 2004

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: S-ADENOSYL METHIONINE DECARBOXYLASE INHIBITION FOR THE TREATMENT OF A HERPES SIM-
PLEX VIRUS INFECTION

(57) Abstract: The invention relates to the inhibition of S-adenosyl methionine decarboxylase for the prevention and/or the treatment
of a herpes simplex virus infection.

WO 2004/033417 A3

INTERNATIONAL SEARCH REPORT

International Application No.
PC 03/04636

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07C281/18 A61K31/15 A61P31/22 C12N15/11

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07C A61K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal, PAJ, MEDLINE, BIOSIS, WPI Data, CHEM ABS Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 358 536 A (MERRELL DOW PHARMA) 14 March 1990 (1990-03-14) page 17, line 36 - line 39 -----	1-3,6-9, 13
X	US 4 027 039 A (HEGARTY CHARLES PAUL ET AL) 31 May 1977 (1977-05-31) claim 1 -----	1,2,6,7, 9
X	US 4 032 659 A (PIETRYK HELEN C ET AL) 28 June 1977 (1977-06-28) claim 1 -----	1,2,6,7, 9
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

5 February 2004

Date of mailing of the international search report

05.05.2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Beranová, P

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KARVONEN E ET AL: "IRREVERSIBLE INHIBITION OF PUTRESCINE-STIMULATED S ADENOSYL-L-METHIONINE DECARBOXYLASE BY BERENIL AND PENTAMIDINE" BIOCHEMICAL JOURNAL, vol. 231, no. 1, 1985, pages 165-170, XP008027265 ISSN: 0264-6021 page 165, abstract	1,2,5-10
Y	THOMAS THERSIA ET AL: "Structure-activity relations of S-adenosylmethionine decarboxylase inhibitors on the growth of MCF-7 breast cancer cells" BREAST CANCER RESEARCH AND TREATMENT, vol. 39, no. 3, 1996, pages 293-306, XP008027257 ISSN: 0167-6806 page 303, left-hand column, paragraph 1 figure 1 table 1	1,2,5-11
Y	EP 0 456 133 A (CIBA GEIGY AG) 13 November 1991 (1991-11-13) claim 1 page 3, line 30 - line 32	1,2,5-11
Y	SIU LILLIAN L ET AL: "A phase I and pharmacokinetic study of SAM486A, a novel polyamine biosynthesis inhibitor, administered on a daily-times-five every-three-week schedule in patients with Advanced solid malignancies." CLINICAL CANCER RESEARCH: AN OFFICIAL JOURNAL OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH. UNITED STATES JUL 2002, vol. 8, no. 7, July 2002 (2002-07), pages 2157-2166, XP002269172 ISSN: 1078-0432 page 2157, abstract	1,2,5-11
Y	US 4 971 986 A (STANEK JAROSLAV ET AL) 20 November 1990 (1990-11-20) claim 1 column 3, line 6 - line 10	1,2,5-10
	-/--	

C.(Continuation) DOCUMENTS COMPLETED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>STANEK J ET AL: "4-Amidinoindan-1-one 2'-amidinohydrazone: A new potent and selective inhibitor of S-adenosylmethionine decarboxylase" JOURNAL OF MEDICINAL CHEMISTRY 1993 UNITED STATES, vol. 36, no. 15, 1993, pages 2168-2171, XP002269173 ISSN: 0022-2623 page 2168, abstract page 2169, left-hand column, paragraph 3 figure 1 table I</p> <p>-----</p>	1,2,5-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 03/04636

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 12, 13
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-10, 14, 15 (all partially), 11, 16

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 12, 13

Present claims 1 - 10, 14 and 15 relate to a compound defined by reference to a desirable characteristic or property, namely "inhibitor of S-adenosyl methionine decarboxylase". The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds mentioned in Example 9.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1 - 10, 14, 15 (all partially), 11, 16

The use of S-adenosyl methionine decarboxylase inhibitors
for the treatment of herpes simplex virus infections

2. claims: 1 - 10, 14, 15 (all partially), 12, 13

The use of antisense nucleic acid sequence for the treatment
of herpes simplex virus infections

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

P 3 03/04636

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